**STAN-EVAL NOTES**
**CIVIL AIR PATROL VIRGINIA WING**
**UNITED STATES AIR FORCE AUXILIARY**
7401 Airfield Drive
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March 2012

**UAVs are Coming!!!:** The 145-page FAA reauthorization bill just passed requires the FAA to speed up the introduction of Unmanned Aircraft Systems (UAS) into the National Airspace System. Sharing airspace with large UAVs (or UASs) raises concerns over mid air collisions, especially for aircraft not under ATC control such as our CAP aircraft on visual missions. UAVs include not just the behemoths like Global Hawk, which rivals a B727 in size, but small UAVs weighing just a few pounds popular with local police departments.

According to Max Trescott's blog: "At least one UAS has already had a mid-air collision. In August 2011, over the skies of Afghanistan, a 450-pound UAS hit a C130 cargo plane, damaging the plane and forcing an emergency landing. The drone was destroyed.

Near mid-air collisions are also occurring. In August 2004, a dramatic series of images from a German-built Luna UAS documents its own near miss with an Airbus A300B4 airliner with more than 100 passengers on board. The two aircraft missed each other by less than 50 feet. The UAS crashed after encountering the airliner's wake turbulence."

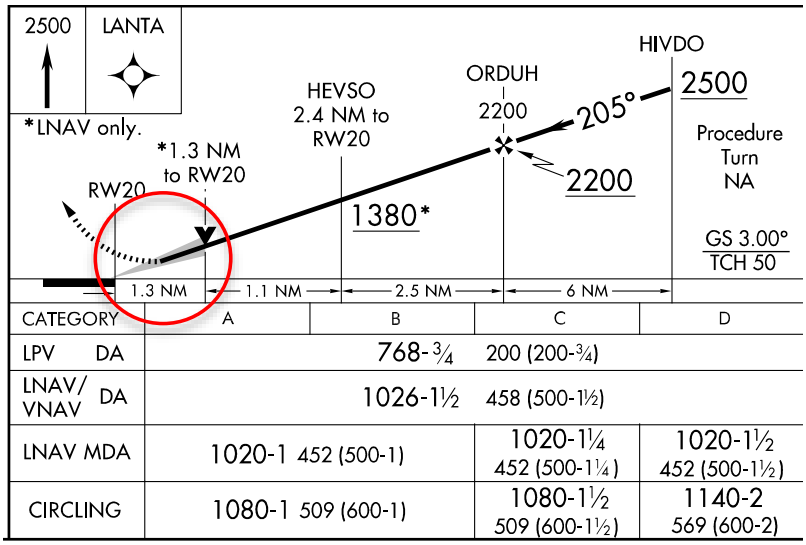
**VDPs and LNAV+V approaches (Capt J. Karanikas):** There have been a lot of "hangar flying" discussions (non CAP members of course) regarding LNAV+V approaches that require a second look. It appears that many are regarding LNAV+V approaches safe to fly the vertical guidance (glideslope) all of the way down to the runway. They believe that this will keep them out of trouble at unfamiliar airports, at night, etc. THIS IS NOT AN AUTHORIZED PROCEDURE, as the vertical guidance of the LNAV+V is ADVISORY only and cannot be used from the MDA to the runway.

First, let's review the definition of a LNAV+V approach:
(source: http://garmin.blogs.com/my_weblog/2011/05/victors-vectors-lnavv-annunciations-on-your-garmin-navigator.html)
"Garmin defines LNAV+V as Lateral Navigation with Advisory Vertical Guidance. This is an LNAV approach with an advisory vertical guidance, which is usually in the 3 degree range and is provided to assist the pilot in maintaining a constant vertical glidepath. Because it is advisory in nature and not an approach minimum the pilot is responsible for maintaining approach step down altitudes and obstacle clearance." What the advisory glideslope does is to provide a way to fly a constant descent to each step down altitude, but you cannot go below the step down altitudes. In other words, instead of flying the step downs, you can fly a constant descent while staying above the minimums. Only the LNAV portion of the LNAV+V can be relied on during an approach. It's the equivalent of a LOC approach, although it provides an advisory glide slope. Once below MDA, the glide slope may take you to the runway, but it may take you through terrain to get there. Watch out!!! (Note that LNAV+V is different from a LNAV/VNAV approach, which does have vertical guidance.)

Secondly, let's review the FAA's official definition of VDP (visual descent point):
"A defined point on the final approach course of a non-precision straight-in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced, provided the approach threshold of that runway, or approach lights, or other markings identifiable with the approach end of that runway are clearly visible to the pilot." In plain English, the VDP is simply the last point where you can descend from the MDA to the runway without having to make an abnormally steep descent. For large and fast aircraft, if

you are past the VDP when you see the runway, you should go around. For slow GA aircraft, there is a bit more forgiveness, but good practice dictates that a go around should be initiated once past the VDP even if you are not at the MAP.

So how does the errant pilot get himself into trouble with a LNAV+V? Let's study the following GPS 20 into DAN.

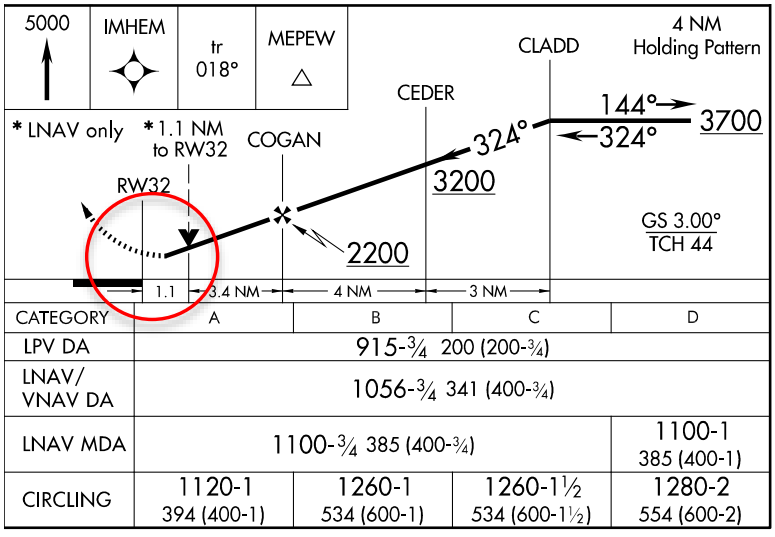



| CATEGORY | A | B | C | D |
|---|---|---|---|---|
| LPV DA | 768-¾ | 200 (200-¾) | | |
| LNAV/ VNAV DA | 1026-1½ | 458 (500-1½) | | |
| LNAV MDA | 1020-1 452 (500-1) | | 1020-1¼ 452 (500-1¼) | 1020-1½ 452 (500-1½) |
| CIRCLING | 1080-1 509 (600-1) | | 1080-1½ 509 (600-1½) | 1140-2 569 (600-2) |

DANVILLE RGNL (DAN)
36°34'N-79°20'W
RNAV (GPS) RWY 20

Note that on the DAN GPS 20 approach there is gray "feather" from the VDP to the runway. The "feather" depicts that the visual segment below the MDA (DA for precision approaches) is clear of obstacles on a 34:1 slope (approx. 3 degree glide slope). Again, the vertical guidance cannot be used from the VDP to the runway since this is NOT an authorized procedure (see para 1). It remains advisory only.

Now take a look at the OKV GPS 32 approach.




| CATEGORY | A | B | C | D |
|---|---|---|---|---|
| LPV DA | 915-¾ 200 (200-¾) | | | |
| LNAV/ VNAV DA | 1056-¾ 341 (400-¾) | | | |
| LNAV MDA | 1100-¾ 385 (400-¾) | | | 1100-1 385 (400-1) |
| CIRCLING | 1120-1 394 (400-1) | 1260-1 534 (600-1) | 1260-1½ 534 (600-1½) | 1280-2 554 (600-2) |

WINCHESTER RGNL (OKV)
39°09'N - 78°09'W
RNAV (GPS) RWY 32

Notice that the GPS 32 OKV approach does NOT have the "feather" from the VDP to the runway. In this example, there is no guarantee that following the advisory glideslope from the VDP to the runway will provide obstacle clearance.

So where does this leave us?

- Ensure you have a full understanding of the LNAV+V limitations and the fact the vertical guidance is "advisory only."
- Make sure you have the required flight visibility and at least one of the following before leaving the MDA:

    - The flight visibility is not less than the visibility prescribed in the standard instrument approach being used; and
    - The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
    - The threshold.
    - The threshold markings.
    - The threshold lights.
    - The runway end identifier lights.
    - The visual approach slope indicator.
    - The touchdown zone or touchdown zone markings.
    - The touchdown zone lights.
    - The runway or runway markings.
    - The runway lights.

And finally, if you are at MDA and past the VDP without seeing the runway or environment, initiate the missed approach procedure.

**LP approaches have arrived in Virginia! (Capt J. Karanikas):** As of 12 Jan 2012, Virginia has 10 LP approaches (para 4), but before we ATTEMPT to fly one, a quick review of GPS approaches is in order.

Can you name the five types of GPS approaches? If not, the following table may help:

| GPS approach | Vertical Guidance | WAAS Required | Typical Minima |
|---|---|---|---|
| **LNAV** | No | NO | 400' |
| **LNAV+V (see note A)** | Yes | YES | 400' |
| **LNAV/VNAV** | Yes | YES | 350' |
| **LPV** | Yes | YES | 200' |
| **LP (see note B)** | No | YES | 300' |

Note A: The LNAV+V glide slope is advisory only and is a non precision approach, you will not see "LNAV+V" listed on the IAP. The pilot is responsible for obstacle clearance since the VERTICAL guidance is "advisory only".

Note B: LP approaches are non precision approaches similar to a VNAV approach but have lower minima as they require a WAAS-equipped GPS. There is no glide slope due to terrain or other limitations. LP approaches are flown to an MDA as in any other non precision approach. Make sure your WAAS-equipped receiver is approved for LP minima before using it. Your GPS should not offer an LP approach as an option if your unit is not approved for LP approaches. Currently our Garmin units are NOT approved for LP approaches, but we suspect that may change in the near future.

The following Virginia Wing Aircraft have WAAS (our GX60 equipped aircraft have GPS approaches but no WAAS):

- Garmin GNS480 GPS: N605CP/CAP4531
- Garmin G1000 GPS: N399CP/CAP 4527, N482CP/CAP 4532, N576CA/CAP 4529, N989CP/CAP 4528

As of 12 Jan 2012, 236 LP approaches exist nationwide (more on the way), with the following 10 approaches in Virginia:

- JFZ-TAZEWELL COUNTY RNAV (GPS) RWY 7
- 8W2-NEW MARKET RNAV (GPS) RWY 6
- 8W2-NEW MARKET RNAV (GPS) RWY 24
- ROA-ROANOKE REGIONAL RNAV (GPS) RWY 24
- ROA-ROANOKE REGIONAL RNAV (GPS) RWY 6
- SFQ-SUFFOLK EXECUTIVE RNAV (GPS) RWY 7
- SFQ-SUFFOLK EXECUTIVE RNAV (GPS) RWY 4
- SFQ-SUFFOLK EXECUTIVE RNAV (GPS) RWY 22
- SFQ-SUFFOLK EXECUTIVE RNAV (GPS) RWY 25
- FYJ-MIDDLE PENINSULA RGNL RNAV (GPS) RWY 28

Of particular interest are the approaches into 8W2. Prior to the introduction of LP approaches, 8W2 had no instrument approach.

With the current aircraft certification levels, VAWG WAAS equipped aircraft can fly LNAV, LNAV+V, LNAV/VNAV and LPV approaches IF they are listed in the GPS database. The G1000 and GNS480 are smart enough that they will only offer to the pilot approaches that it is capable of flying.

For example, see the following list of G1000 GPS approaches that can be flown into KRIC:


As of Jan 2012, LP approaches are NOT listed in the G1000 or GNS 480 database; however we can fly the other types of minima on these approaches, such as the LNAV. Bottom line, if it's not in the GPS database, you cannot fly that GPS approach minima.

**Changes to the NASA ASRS (Maj F. Ladd):** Pilots and aircrew should be familiar with NASA's Aviation Safety Reporting System (ASRS) (http://asrs.arc.nasa.gov/). If not, you should be. It allows any pilot or aircrew member to report safety incidents anonymously. A monthly newsletter (CALLBACK) is also published highlighting various safety issues. The ASRS provides the pilot with a "get out of jail free" card if involved with an incident or accident (restrictions apply so read the fine print). If you are aware that you committed a violation, you have 10 days to file an ASRS report, which could avoid a suspension of your flying privileges.

The FAA modified its Enforcement policy on December 16, 2011, to extend the time within which pilots must mail or file NASA Reports from a hard 10 days after a violation to "10 days after the violation, or date when the person became aware or should have been aware of the violation …" See FAA AC 00-46E for details.

The ASRS system provides a way for pilots to avoid suspensions they might otherwise receive as a result of a violation in return for the voluntary reporting of safety issues. However, FAA policy still prevents NASA reports from being used to waive suspensions if the pilot has a prior violation within 5 years, or if the present violation was a criminal act (usually intentional), or was not inadvertent, or resulted from a lack of qualification or competency.

Bottom lines are:

1. Pilots should file NASA Reports as soon as they become aware of a potential violation, and, when aware of a potential violation, no later than 10 days of the event.
2. However, if the pilot was unaware of a violation and later told of a violation did occur, they should file a NASA Report immediately to promote aviation safety and because a late report may be accepted by FAA Enforcement to waive a suspension.

Pilots are encouraged to have their NASA Report reviewed by counsel before submission whenever time allows, and should be aware while a NASA Report may be applied to waive a suspension of their certificate, they do not remove record of a violation.

**Update to the VAWG Glider Program:** Work continues on restarting the glider program to VAWG. We now have the MDWG glider and are working to re-qualify our glider and tow pilots. Capt Pat Riley and Capt Larry Randall are leading the charge. The FAA recently changed the rules for gliders and squawk codes specifying that gliders should squawk 1202 to make them easier to identify.

**Problems with Pilot Qualifications:** One of the most frequent questions we get from VAWG pilots is why they are no longer shown as valid pilots in Ops Quals or why the FRO has just told them their credentials have expired and they can't get a flight release. Most pilots realize that to remain a valid CAP pilot, they must take and pass a Form 5 check ride. But Ops Quals looks at everything that a pilot must have and will invalidate a pilot whenever any of the following expires:

- Medical (expires 2 – 5 years after issue depending on pilot's age)
- Flight Review (expires after 24 calendar months)
- On line Form 5 test (expires after 12 calendar months)
- Form 5 (expires after 12 calendar months)
- Biannual ground handling video (expires after 24 calendar months)
- Safety briefing

So if you have dropped off the list of valid pilots, go back and make sure you are current on all of the above by going into Ops Quals and taking the following steps:

1. Choose the menu item on the left "My Operations Qualifications"
2. Choose under "Pilot" the "What do I need" button
3. You then have the option of reviewing your qualifications and uploaded documents (at the top of the page), review both!
4. Then you can select from a drop-down box the particular qualification you are researching (VFR pilot, Instrument, G1000 and so forth)

This will produce a page of all the qualifications associated with whatever you selected. You will be able to see what you are missing and can then take the appropriate action. Often, the pilot has the required item but either has failed to put it into Ops Quals or it has not been validated and approved yet.

**Mountain Flying Clinic 14-15 April:** We still have openings for pilots at the OKV based Mountain Flying Clinic scheduled for 14 - 15 April at OKV. Contact LtCol Duke Stanton if you are interested.

**Visual Scanning Illusions (Capt L. Randall):** Visual scanning is so important for aircrews to stay clear of other traffic. Most of us fly in areas with lots of flight activity, especially on good weather days so it's important to have good traffic scanning skills. We are taught to keep your eyes moving and avoid focusing on any one spot for too long. The following site demonstrates that not keeping your eyes moving can make your eyes miss other aircraft (or obstructions). This also applies to flying on instruments.

http://www.msf-usa.org/motion.html

**Articles for the VAWG Stan Eval Newsletter:** We are always looking for brief articles of interest to VAWG pilots to include in this newsletter. CAP has many very experienced pilots and aircrew who have useful techniques, experiences, and tips to share. Please send your contribution to steve.hertz@ngc.com. If your article is accepted, you will get a pro rata share of the VAWG Stan Eval Newsletter subscription fees.